

SARS-CoV-2 Variants Are Detected By Norgen Biotech's COVID-19 TaqMan RT-PCR Kit (E/RdRP genes)

A variant analysis was completed for the following kits:

1. COVID-19 TaqMan RT-PCR Kit (E/RdRP genes) (TM67200, TM67240)
2. COVID-19 TaqMan RT-PCR Kit (E/RdRP genes) Dx (DxTM67200)

The analysis illustrates that the designed primers and probes can target the new variants as of February 28, 2022 of SARS-CoV-2. The alignment scores for the COVID-19 TaqMan RT-PCR Kit (E/RdRP genes) to the variants can be seen in Table 1, which shows that the E gene assay has a 100% alignment to the variants and the initial SARS-CoV-2 Wuhan strain. For the RdRP assay, the RdRP probe 2 aligns 100%, the RdRP forward aligns with 1 mismatch to the Indian and Omicron variant, the RdRP reverse aligns with 1 mismatch to all variants, and the RdRP probe 1 has a 0% alignment, these results follow the kit design as the RdRP probe 1 is meant to be universal for all SARS viruses. This analysis can then conclude that all three kits have the same efficacy of detection to the new emerging variants.

Table 1: The variant alignment score for the COVID-19 TaqMan RT-PCR Kit (E/RdRP genes) primers and probes for RdRP and E gene.

Primer		Alignment Score							
		Variant/WHO Label/Lineage							
		England Variant EPI_ISL_581117	Brazil Variant EPI_ISL_792680	South Africa Variant EPI_ISL_678597	Nigerian Variant EPI_ISL_1168768	California Variant EPI_ISL_1335868	Indian Variant EPI_ISL_2832106	Omicron Variant EPI_ISL_6963510	SARS-CoV-2 isolate Wuhan-Hu-1 NC_045512.2
		Alpha/B.1.1.7	Gamma/P.1	Beta/B.1.351	Eta/B.1.525	Epsilon/B.1.429	Delta/B.1.617.2	Omicron/B.1.1.529	N/A
RdRP Gene	RdRP_Foward	100%	100%	100%	100%	100%	95%	95%	100%
	RdRP_Reverse	96%	96%	96%	96%	96%	96%	96%	96%
	RdRP_Probe 1	0%	0%	0%	0%	0%	0%	0%	0%
	RdRP_Probe 2	100%	100%	100%	100%	100%	100%	100%	100%
E Gene	E_Sarbeco_Foward	100%	100%	100%	100%	100%	100%	100%	100%
	E_Sarbeco_Reverse	100%	100%	100%	100%	100%	100%	100%	100%
	E_Sarbeco_Probe	100%	100%	100%	100%	100%	100%	100%	100%

Norgen is closely monitoring upcoming variants on a monthly basis and we will notify our customers if any there are any changes in the capacity for detecting new variants.